Name _____ **Date** _____
Science _____ **Analyzing WS**

Analyzing Elements of the Scientific Method

Instructions: Read the following statements and then answer the questions.

1. You have just bought an old-fashion clock that runs by weights on chains and a pendulum.
2. To get the clock to run, you pull the weights up and start the pendulum swinging. Your watch says 4:00, so you set the clock to this time.
3. Several hours later, you return with a friend to look at your clock. According to your watch it is 8:05, but the clock reads 8:15.
4. After determining that there is nothing wrong with your watch, your friend asks, "What do you think caused the clock to gain time?"
5. You watch the clock for a few minutes and then you propose, "I think that if the pendulum swings too quickly, it makes the clock run fast."
6. You continue, "I also think that if the length of the pendulum were increased, the pendulum would swing more slowly and the clock would run out of time."
7. "Furthermore," you say, "to test my explanation, I will suspend strings of three different lengths and tie a washer to the end of each. Then, I will swing each length of string from a 45-degree angle and time how quickly each swings."

<u>Questions</u>: write the number of the line from above that answers the questions below. Some numbers can be used more than once or not at all.

a. In which 2 statements is a *prediction* made? _____

b. Which statement states a *problem*? _____

c. In which statement is an *experiment* described? _____

d. Which 2 statements contain a *hypothesis*? _____

e. Which 2 statements contain *data*? _____

f. Which 3 statements describe *observations*? _____

(OVER→)

Performing an Experiment

Instructions: Read the following statements and then answer the questions.

1. A scientist wants to find out if a rattlesnake follows the trail of a bitten mouse rather than that of an unbitten mouse.

2. The scientist goes to the library and reads all about the senses of rattlesnakes. The scientist discovers that rattlesnakes have poor vision but a good sense of smell.

3. Based on this information, the scientist guesses that the rattlesnake uses its sense of smell to follow its prey. The scientist further guesses that the snake senses the smell of its venom in the bitten mouse and follows the mouse.

4. To test these ideas, the scientist goes to the laboratory and does the following:

    a. Allows a rattlesnake to bite a mouse.
    b. Drags the mouse across a starch of sand.
    c. Releases the snake from its cage.

5. The scientist does the following with a mouse that has NOT been bitten by the snake:

    a. Drags the mouse along the stretch of sand.
    b. Releases the snake from its cage.

6. The scientist notes the rattlesnake's behavior in each case. The snake acts uninterested in the trail of the unbitten mouse. The snake follows the trail of the bitten mouse.

7. The scientist writes in a notebook" "It appears as if rattlesnakes follow the scent of their venom when tracking down an animal they have bitten."

Questions: write the number of the line from above that answers the questions below. Some numbers can be used more than once or not at all.

a. Which statement contains a **conclusion**? _____

b. Which statement refers to **research**? _____

c. Which statement contains a **hypothesis**? _____

d. Which statement contains **observations**? _____

e. Which 3 statements describe an **experiment**? _____

f. Which statement supports the **hypothesis**? _____

g. In which statement is the **problem** defined? _____

h. Which statement describes the **control** set-up? _____

i. Which statement describes the **independent variable**? _____